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tion of these crystal-studded hail stones, are apparently unusual, since such stones are far from common.

I have called attention to the phenomena, not for the purpose of suggesting any explanation for the formation of these peculiar stones, but merely to place on record an observed fact.

After all the other business of the meeting had been disposed of, the ballot-box was opened by the Secretaries and the votes being counted the result of the poll was reported to the presiding member, who declared the following to have been duly elected members of the Society, viz.:

No. 2160. Walter J. Hoffman, Washington, D. C.

No. 2161. J. W. Powell, Washington, D. C.

No. 2162. G. Brown Goode, Washington, D. C.

No. 2163. Lyon G. Tyler, Williamsburg, Va.

No. 2164. James B. Angell, Ann Arbor, Mich.

No. 2165. Henry Hazlehurst, Philadelphia.

No. 2166. David K. Tuttle, Philadelphia.

And the Society was adjourned by the presiding member.

Stated Meeting, November 1, 1889.

Present, 14 members.

Dr. RUSCHENBERGER in the Chair.

Mr. Henry Hazlehurst, a newly elected member, was presented to the Chair and took his seat.

Correspondence was submitted as follows:

Letters accepting membership in the Society were read from No. 2160, Dr. Walter J. Hoffman, Washington, D. C., October 24, 1889.

No. 2161, Major J. W. Powell, Washington, D. C., October 21, 1889.

No. 2162, George Brown Goode, Washington, D. C., October 22, 1889.

No. 2163, Hon. Lyon G. Tyler, Williamsburgh, Va., October 24, 1889.

No. 2164, Prof. James B. Angell, Ann Arbor, Mich., October 23, 1889.

No. 2165, Henry Hazlehurst, Philadelphia, October 21, 1889.

And No. 2166, David K. Tuttle, Philadelphia, October 22, 1889.

A letter was read from the American Folk-lore Society announcing that its first annual meeting would be held at Philadelphia on November 29 and 30, 1889.

A letter of envoy was received from the U. S. Commission of Fish and Fisheries, Washington, D. C.

Acknowledgments were received from the Asiatic Society (China Branch), Shanghai (126, 127); Comité Geologique, St. Petersburg (128); Dr. Hermann Rollett, Baden-bei-Wien (128); Naturhistorischer Verein, Bonn (128); Kansas Academy of Science, Topeka (127, 128); Don Mariano Barcena, Mexico (128).

Comité Geologique, St. Petersburg; Dr. O. Donner, Helsingfors, Finland; Soci  t   R. de Zoologie, Natura artis Magistra, Amsterdam; K. Zoologisch-Botanisch Genootschap, Gravenhage; Fondation de P. Teyler van der Hulst, Harlem; Senckenbergische Naturforschende Gesellschaft, Frankfurt-am-Main; Naturhistorische Gesellschaft, Hanover; Verein f  r Erdkunde, Metz; R. Biblioteca N. Centrale, Firenze; Mr. Tomasso Cannizzaro, Messina, Italy; Prof. G. Sergi, Rome; Soci  t   des Antiquaires de la Morinie, St. Omer, France; Prof. William Crookes, London, Eng.; Prof. James Geikie, Edinburgh; Admiral Edw. Y. McCauley, Dr. David K. Tuttle, Philadelphia (all 129).

Accessions to the Library were announced from the Tokio Library; Prof. G. D. E. Weyer, Kiel; K. Statistische Landes-Amt, Stuttgart; Instituto y Observatorio de Marina de San Fernando; R. Geographical Society, London; Heirs of Dr. James Henry, Dublin; Dr. Charles C. Abbott, Trenton, N. J.; Massachusetts Bureau of Statistics of Labor, Boston; Pennsylv-

vania Geological Survey, Harrisburg; William S. Baker, Henry Phillips, Jr., Dr. Charles A. Oliver, Philadelphia; Johns Hopkins University, Baltimore; National Academy of Sciences, Department of State, U. S. Commission of Fish and Fisheries, A. S. Flint, Gen. M. C. Meigs, Washington, D. C.; Direccion del Gobierno del Estado de Michoacán, Morelia, Mex.

The Committee on C. R. Keyes' Paper reported progress and was continued.

The deaths of the following members were announced :

M. Gaston Planté, Paris, May 21, 1889, æt. 55.

Prof. Leo Lesquereux, Columbus, Ohio, October 21, 1889, æt. 83.

Mr. Henry Winsor, Philadelphia, October 29, 1889, æt. 86.

On motion, the President was authorized to appoint suitable persons to prepare the usual obituary notices of Mr. Winsor and Prof. Lesquereux.

Prof. Ryder read a paper entitled "A Physiological Theory of the Calcification of the Skeleton."

Prof. Cope presented a "Geological Survey of the Concho Country, Texas," by Prof. J. W. Cummings and Dr. Otto Lerch.

A communication read from Mr. Burnet Landreth in reference to an Association of Centenary Firms and Corporations of the United States was ordered to be filed.

On motion of Dr. Brinton, the Committee on Finance was requested to consider and report at the next meeting upon the expediency and propriety of the Society's subscribing \$50 towards the expenses of receiving and entertaining the Convention of the American Folk-lore Association, about to meet in this city at the University of Pennsylvania, on November 29 and 30, 1889.

Dr. Brinton made the following motion :

Resolved, That the Secretaries be authorized to communicate with the officers of the other scientific societies and libraries in Philadelphia, for the purpose of preparing a Union List of Scientific Periodicals open to the members of all scientific societies by proper introduction.

Dr. Morris moved to amend by striking out all after the word *Periodicals*.

Mr. Horner moved to amend by inserting after *Periodicals* the words "taken by them."

Prof. Heilprin moved to amend by inserting after *Periodicals* the words "including Transactions and Journals."

The amendments were accepted by the original mover, and the resolution, as finally amended, was unanimously adopted as follows :

Resolved, That the Secretaries be authorized to communicate with the officers of the other scientific societies and libraries in Philadelphia, for the purpose of preparing a Union List of Scientific Periodicals, including Transactions and Journals taken by them.

And the Society was adjourned by the presiding member.

The Phylogeny of the Sweat-Glands.

By Prof. John A. Ryder.

(Read before the American Philosophical Society, October 4, 1889.)

The suggestion of the descent of the Mammalia through a reptilian ancestry has been favorably received by many naturalists. In this connection, those singular Permian types described by Prof. Cope under the name of *Theromora* may be recalled. The *Theromora* present certain striking resemblances to the monotremes, but what their integuments may have been like in microscopic structure we shall probably never know. And it is just upon this question of integumentary structure that much of high taxonomic importance rests. Upon examining the integument of vertebrates the general plan of structure is found to be very similar in all of the orders. The main differences arise (1) through variations in the thickness of the epiblastic epidermis and the mesoblastic dermis or corium ; (2) the arrangement of the connective-tissue fibres of the latter, and (3) the absence or degree of development of glands in connection with the epidermis.

The tendency of the fibres of the corium to interlace in three directions in fishes is marked, and may be best seen in selachians and chondrosteans, while it is equally striking amongst Marsipobranchii. The fibres seem to be disposed in annular layers, between which longitudinal layers are disposed, while the whole is firmly bound to the subcutaneous connective tissues by fibres which traverse the meshes of both the preceding layers, this third